

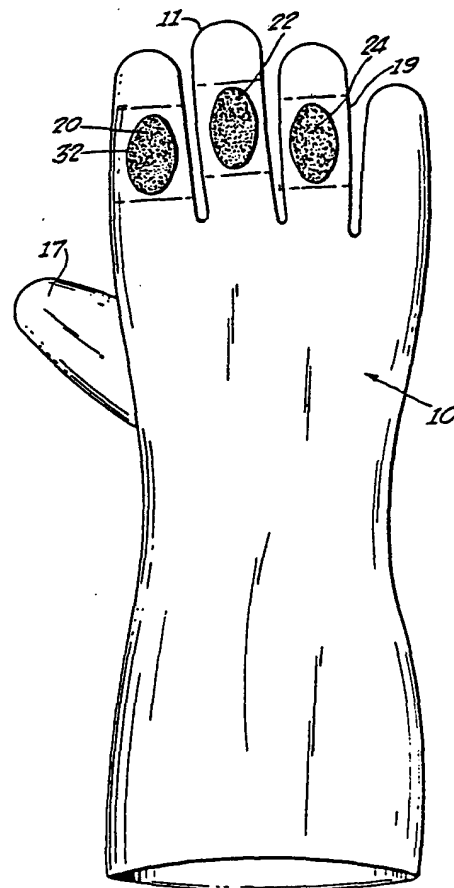


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(54) Title: WATERPROOF SCOURING GLOVE**(57) Abstract**

Cleaning and scouring glove (10) having a flexible body including a palm, a thumb, and finger stalls, the finger stalls including a second row of phalanges. Disposed upon the second row of phalanges in the knuckle area of the middle three fingers are three ovoid scouring or cleaning units (20, 22, 24). In the palm and inner finger region is located an upper (12) and lower (14) cleaning or abrasive surface, the upper surface covering substantially the entire upper palm and inner finger area, and the lower surface covering substantially the entire lower palm area, the upper and lower surface being separated by a transverse linear separation of about 1/8 inch, this linear separation (16) corresponding generally to the natural transverse fold in the palm, the separation functioning to enhance the flexibility of the palm area of the glove to facilitate the complete clenching of the fist of the user in order to make possible the application of considerable force and pressure by the user when the cleaning glove is held in a position of a clenched fist with pressure and reciprocal motion applied by the user between the second row phalanges of the knuckle and the rigid surface to be cleaned by the disclosed waterproof cleaning glove. Also disclosed are means for the attachment and removability of the cleaning surfaces and units to provide a range of different cleaning mechanisms. The cleaning units may include a cellulose layer (30) capable of rotating detergent in solution.



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WATERPROOF SCOURING GLOVE

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BACKGROUND OF THE INVENTION

15 The present invention relates to gloves and, more particularly to waterproof gloves having abrasive scouring surfaces for purposes of cleaning.

Heretofore, waterproofed gloves and mittens, have been used to protect the user's hands from harsh detergents and other chemicals necessary in most
20 cleaning operations. In addition, steel wool and other such fibrous abrasives have been used to accomplish the cleaning of surfaces of various types.

In some instances, abrasive cleaning surfaces have been attached to certain gloves or mittens,
25 including gloves or mittens which are waterproof. To the knowledge of the inventor, these abrasive or cleaning surfaces have been attached to the gloves adjacent to or at the palm area of the particular glove. The prior art in this respect is explified by U.S. Patent No.
30 2,459,521 to Woodbury; No. 3,643,386 to Grizyll; and 4,038,787 to Bianchi; as well as French Patent No. 2,278,277 to Scott.

The above and other art known to the Inventor

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relates only to the attachment of the abrasive or cleaning material to the palm area. The problem encountered therein is the palm of the user is soft and, therefore, is not as effective for the cleaning of
5 difficult surfaces as is a scouring stone or other material having a rigid abrading surface. Further, in that the area of the palm is relatively large, the pounds per square inch that may be applied therefrom, to the working surface, is relatively small.

10 A shortcoming in prior art cleaning gloves has been the lack of physical flexibility, their incapacity to act as a sponge in order to accomplish the absorption and retention of detergents in solution, and the single cleaning purpose thereof, i.e., particularity of the
15 cleaning surface for which a given cleaning abrasive glove may be used.

The inventor has discovered that the location of cleaning or scouring units upon the outer portion of the glove and, more particularly, upon the second row of
20 phalanges of the middle three fingers of the hand of the user, will make possible the application of many more pounds per square inch of force than is possible in the usage of the palm of the hand as a cleaning or scouring means.

25 The inventor has also discovered a usage, and interrelationship of usage, of certain materials for (a) the glove proper and (b) the cleaning or abrasive material that, in combination, provide enhanced effectiveness in terms of cleaning capability, variety
30 of material that may be cleaned, and comfort to the user.

The present invention is believed to be properly classified in one or more of the following

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areas: U.S. Class 2, Subclass 161; Class 51, Subclass 391; and Class 242, Subclass 15.

SUMMARY OF THE INVENTION

The instant invention comprises a waterproof
5 cleaning or scouring glove having a flexible body
including a palm, a thumb and finger stalls, the finger
stalls including a second row of phalanges. Disposed
upon the second row of phalanges, in the knuckle area, of
the middle three fingers are three ovoid scouring or
10 cleaning units. In the palm and inner finger region is
disposed an upper and lower cleaning or abrasive
surface, the upper surface covering substantially the
entire upper palm and inner finger area, and the lower
surface covering substantially the entire lower palm
15 area, said upper and lower surfaces separated by a
transverse, linear separation of about 1/8 inch, said
separation functioning to enhance the flexibility of the
palm area of the glove. The cleaning or abrading unit
may also be added to the inner thumb area of the present
20 flexible glove.

Due to the particular disposition of the ovoid
abrading units upon the second row of phalanges,
considerable force and pressure may be applied by the
user when the present inventive glove is held in the
25 position of a clenched fist.

It is accordingly a general object of the
present invention to provide a glove having a flexible
body including a palm, a thumb, and finger stalls having
abrasive or cleaning surfaces on the palm side thereof
30 and on the other side, especially designed surfaces upon
the second row of phalanges of the middle fingers
adapted for use by the user when his fist is clenched.

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5 It is another object of the invention to provide a scouring surface that will interact with the flat, skeletal, thinly sheathed middle finger region of the hand of the user upon which considerable leverage may be developed.

It is a further object of the invention to provide a scouring or cleaning surface on the mid-portion of the finger of the waterproof glove upon which pressure from the shoulder of the user may be exerted.

10 It is a yet further object to provide a glove of the above set forth type including ovoid abrading units in the knuckle region on the hand of the user.

15 It is still further object to provide a scouring glove of the above type including cleaning or abrasive surfaces upon the inner palm and inner finger portion of the scouring glove, while retaining considerable flexibility thereof.

20 It is a further object to provide a cleaning glove of the above type in which the abrading units are capable of absorbing and retaining a detergent solution.

25 It is still a further object of the invention to provide a cleaning glove of the above set forth type in which the cleaning units may be physically removed from the glove substrate and replaced by different abrading or cleaning units.

30 It is a still further object of the invention to provide a cleaning glove of the above set forth type in which the cleaning units are disposed in recesses thereby preventing removal thereof from the glove during use thereof, yet permitting removal thereof by the user for replacement by different abrading or cleaning units.

The above and yet further objects and advantages of the present invention will become apparent

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from the hereinafter set forth Detailed Description of the Invention, the Drawings, and Claims appended herewith:

BRIEF DESCRIPTION OF THE DRAWINGS

5 Figure 1 is a perspective view of the palm side of the glove showing the upper and lower palm side abrading surfaces and the abrading surface upon the thumb.

10 Figure 2 is a view of the knuckle side of the glove showing the ovoid cleaning surfaces upon the second row of phalanges.

 Figure 3 is a cross-sectional fragmentary view of one embodiment of a cleaning and abrading unit.

15 Figure 4 is a conceptual illustration of the glove held in a clenched fist position, thus showing the manner of usage of the abrading units of the second row of phalanges.

 Figure 5 is a cross-sectional fragmentary view similar to Figure 3 of a modification of the invention.

20 Figure 6 is a cross-sectional fragmentary view of the embodiment of a cleaning and abrading unit taken generally along the line 6-6 of Figure 5.

DETAILED DESCRIPTION OF THE INVENTION

25 With reference to Figure 1, there is shown therein the backhand or knuckle side of a waterproof cleaning glove having a flexible body 10, said flexible body including fingers 11, a thumb 17 and palm area 12 and 14 that are more clearly shown in Figure 2.

30 On the glove body 10 are disposed a plurality of ovoid scouring or cleaning units 20, 22 and 24. These units are all disposed upon the second row of phalanges 19 of the knuckle area. See Figure 1.

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As is more fully shown in Figure 4, when the fingers of the user are held in a position of a clenched fist, the ovoid units will mate, in a co-planer manner, with a rigid surface 34 such that, particularly when leverage from the shoulder is applied, much of the body weight of the user may be transmitted to the second row of knuckle phalanges. This, it has been found, will result in considerably a greater force per square inch than is possible through the traditional application of force by the palm area of the user. Additionally, it has been found that the use of ovoid abrading or cleaning units, as opposed to square, rectangular, or circular units, will result in an enhanced durability in use-life of the scouring units, particularly when the major axis of the ovoid is disposed in the direction of reciprocation of the glove against the cleaning surface, during usage.

With respect to the inner or palm side of the scouring glove, this is shown in Figure 2, including an upper finger and palm area 12 covering the entire fingers of the inner hand and extending to the natural transverse fold of the palm. Below the upper palm area 12 is the lower palm area 14 which follows the natural curvature of the palm down to the beginning of the wrist. The upper and lower palm areas 12 and 14 respectively are separated by a uniform linear gap 16 having a width of approximately $1/8$ of an inch. The purpose of this uniform linear gap is to enhance flexibility of the glove in the inner palm area by enhancing the degree to which the fist of the user may be clenched to obtain the position of the fully clenched fist shown in Figure 4.

With reference to the thumb area 17, this is

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provided with an abrading unit 18 which follows the general shape of the end of the thumb.

With regard to the nature and structure of the cleaning or abrading material that may be employed for the various cleaning surfaces and units, reference is made to Figure 3 in which there is shown, disposed upon flexible body 10, an adhesive 28 which acts to bond an absorptive layer 30 to said flexible body 10. Integrally formed with the absorptive layer 30 is a working material 32 which, for example, may comprise a cellulose foam material known commercially as scrunge. Other working or abrading materials include nylon abrasives and sand contact abrasives.

The absorptive layer 30 preferably comprises a cellulose material capable of retaining a detergent in solution until it is pressure-urged into and through the layer 32 of working material onto the rigid surface 34.

In order to enhance the suitability of the flexible body 10 for receipt of the adhesive 28, the flexible body 10 may be provided with an undulating or gritted surface 26. On such undulating surface 26, the adhesive 28 is placed and, thereto, the absorptive layer 30 bonded.

It is to be appreciated that the structure illustrated in Figure 3 and described above represents but one embodiment reflective of the instant invention. As an alternative thereof, the absorptive layer 30 may be omitted and the working material 32 adhered directly to the flexible body 10 of gritted surface 26. Where this occurs, the working material 32 will, preferably, have absorptive properties where the character of the detergent or cleaning agent calls for such properties.

It is also noted that the flexible glove body

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may be formed of materials such as latex or neoprene.

It should be additionally understood that the working material 32 may encompass many types of cleaning and/or abrading elements including polishing elements. Also, the working material 32 may be porous, washable and, as above noted, may or may not be adapted for interface and usage with an absorptive layer such as layer 30.

Additionally, it has been noted that the working material 32 may be pre-impregnated with a cleaning agent.

The modification as shown in Figures 5 and 6 is identical to the above described invention but differs in the manner of securing the cleaning units 20, 33 and 24 to the glove. As shown in Figures 5 and 6 the body of the glove includes recesses having a shape and depth of dimensions such to accommodate units 20, 22 and 24 therein, the recesses may be within the surface of the glove or the glove may be provided with upstanding elements or flanges 32 surrounding the perimeter of the units, the recesses together with adhesive 28 functioning to prevent accidental or otherwise preventing removal of the units from the glove while subject to considerable lateral force during use of the invention.

A further feature of one or more embodiments of the present invention involves the removability of the abrading or cleaning surface from the flexible body through the usage of a pressure-adhering and pressure-releasable adhesive 28 such as DEVCON rubber contact cement. Where such a bonding agent, which is responsive to both positive and negative pressure, is utilized with the working material, either with or without the absorptive layer 30, the working material 32 becomes

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removable from the flexible glove body 10. In this situation, it becomes entirely impossible to change abrading or cleaning surfaces as may be required or dictated by the type of surface 34 to be cleaned.

5 Thereby, rather than a requirement for many different gloves, each with a different type of working surface, as has occurred in the prior and present state-of-the-art, a single glove could be used and re-used many times, by simply pulling off the working material 32 and

10 replacing it by a different working material. The above, in addition to being accomplished by a pressure-sensitive glue, may also be accomplished through the use of a velcro-like material.

With reference to the configuration of the

15 ovoid units 20, 22 and 24, disposed upon the second row of knuckle area phalanges, it has been found that the optimum ratio of the major-to-minor axes thereof is 2 to 1 and, as noted above, the disposition of the major axis thereof in alignment with the primary axis of

20 reciprocation of the knuckle, when clenched as shown in Figure 4, has been found to extend the life of the abrading units. The 32 material is scrumge as disclosed in U.S. Patent 4,264,337.

While it has been shown and described the

25 preferred embodiments of the present invention, it will be understood that the invention may be embodied otherwise than as herein specifically illustrated and described; and that within said embodiments certain changes in the detail and construction, and the form and

30 arrangement of the parts, may be made without departing from the underlying idea or principles of this invention within the scope of the appended claims.

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What is claimed is:

1. A waterproof scouring glove for cleaning purposes having a flexible body including a palm a thumb, and finger stalls, the finger stalls including a second row of phalanges in the mid-finger area, the scouring glove comprising:

a plurality of abrading or cleaning units adhered to said second row of phalanges,

whereby, the second row of phalanges may be utilized for the scrubbing of a rigid surface when said glove is held in the position of a clenched fist and, during such clenching, the second row of phalanges of the knuckle are forcefully applied to and reciprocated upon the rigid cleaning surface.

2. The scouring glove as recited in Claim 1 in which said plurality of second row of phalange disposed units comprise ovoid surfaces having their primary axes aligned with the longitudinal axis of the finger stall of the glove to which said ovoid surface is adhered.

3. The scouring glove as recited in Claim 2 in which only the middle three fingers are provided with said ovoid cleaning units.

4. The scouring glove as recited in Claim 1, further comprising:

an upper cleaning surface covering substantially the entire upper palm and inner finger area of the glove body; and

a lower cleaning surface covering substantially the entire lower palm area extending from the natural transverse crease in the palm to the top of the wrist,

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wherein said upper and lower cleaning surfaces are separated by a transverse linear gap disposed substantially at the location of the natural transverse crease of the palm;

5 whereby the capacity of the user to form a tight, clenched fist is enhanced by reason of such transverse linear separation between said upper and lower palm surfaces.

10 5. The scouring glove as recited in Claim 4 in which the width of said linear transverse separation between said upper and lower palm surfaces is approximately 1/8 inch.

15 6. The scouring glove as recited in Claim 1 or 4 in which the structure of the cleaning surfaces comprises:
 an absorption layer disposed between said cleaning surface and the flexible glove body;
 whereby said absorptive layer may absorb water of a liquid solution of detergent for usage in combination with said cleaning surface.

20 7. The scouring glove as recited in Claim 6 in which said cleaning surface comprises a surface which is pre-impregnated with detergent or cleaning agent.

8. The scouring glove as recited in Claim 6 in which said absorptive layer comprises a cellulose structure.

25 9. The scouring glove as recited in Claim 6 in which said absorptive layer is adhered to the flexible glove body with a pressure-responsive adhesive.

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10. The scouring glove as recited in Claim 9 which said pressure-responsive adhesive comprising responsiveness to both positive and negative pressure;

5 whereby the cleaning surface may be both adhered and removed through the application of positive or negative pressure respectively, relative to the flexible glove body thereby providing for interchangeability of cleaning surfaces.

10 11. The scouring glove as recited in Claim 6 in which said flexible glove body includes a grit-like surface adapted for the receipt of a bonding adhesive suitable to secure the absorptive layer to the glove body.

15 12. The scouring glove as recited in Claim 6 further comprising a velcro interface between the flexible glove body and the cleaning surface, thereby providing for removability of the cleaning surface from the flexible glove body.

20 13. The scouring glove as recited in Claim 6 in which the cleaning surface may be selected from the group consisting essentially of metallic abrasives, nylon abrasives, and sand contract abrasives.

14. The scouring glove as recited in Claim 6 in which the cleaning surface comprises a polishing surface.

25 15. The scouring glove as recited in Claim 6 in which said cleaning surface comprises a porous and washable material.

16. The scouring glove as recited in Claim 1 herein at

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5 least one of the abrading or cleaning units is mounted
within a recess of a depth sufficient to receive said
unit and to protrude from said recess a distance
sufficient to function as a scouring unit.

10 17. The scouring glove as recited in claim 1 wherein a
plurality of the units are mounted in said recesses.

15 18. The scouring glove as recited in claim 16 wherein
the external surface of the glove includes a perimetric
flange functionally integral with said glass to
substantially surround each unit about the periphery
thereof thereby preventing dislodging of or otherwise
preventing separation of the unit from the glove during
use thereof.

Fig. 2.

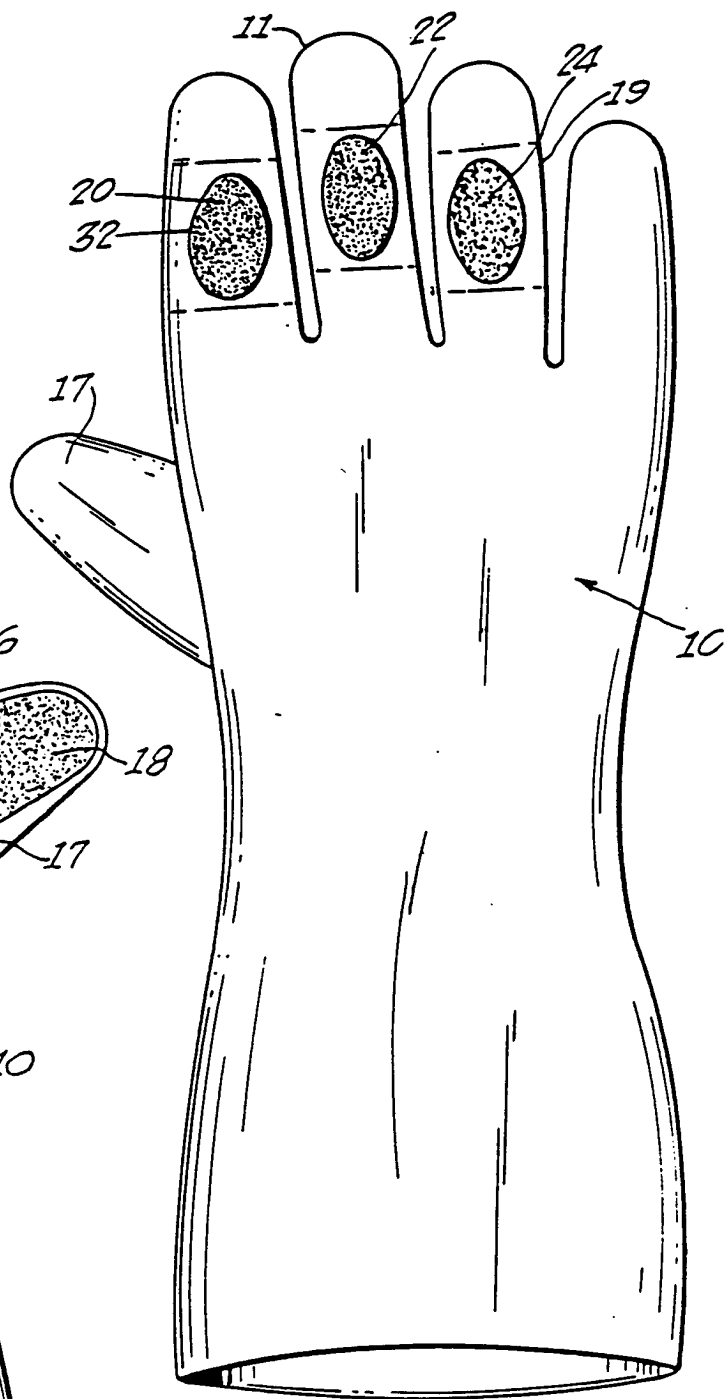
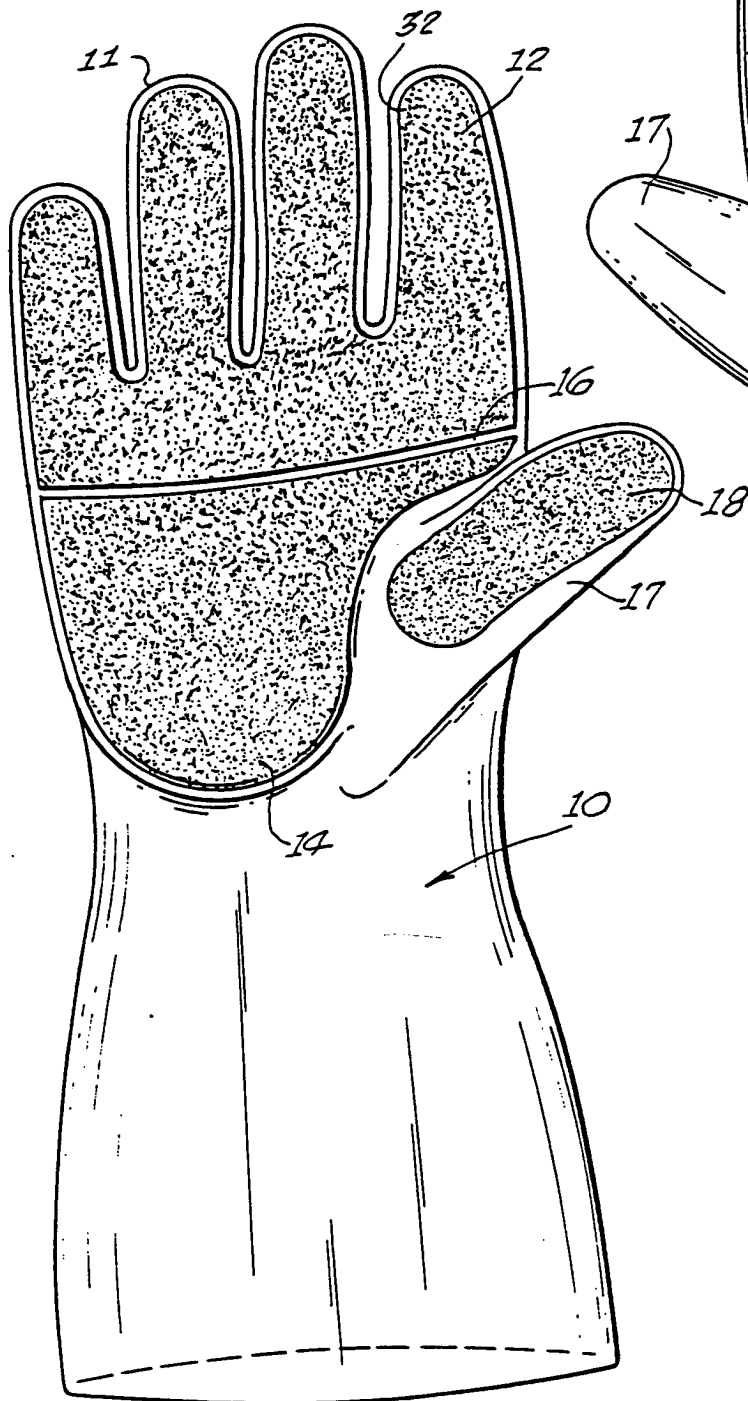
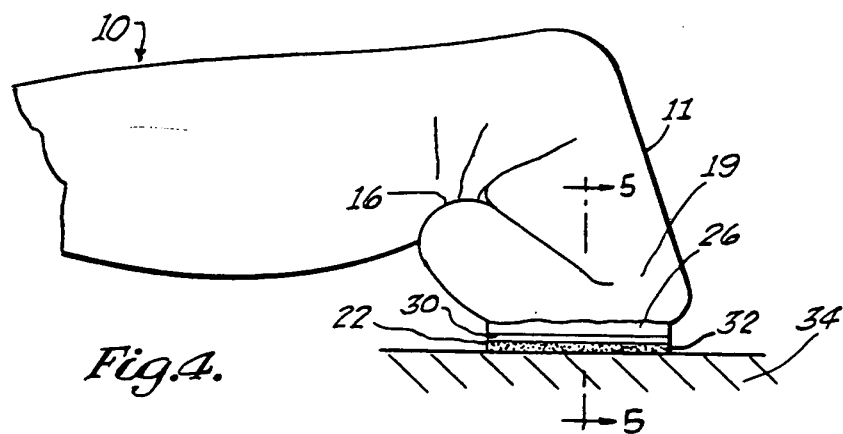
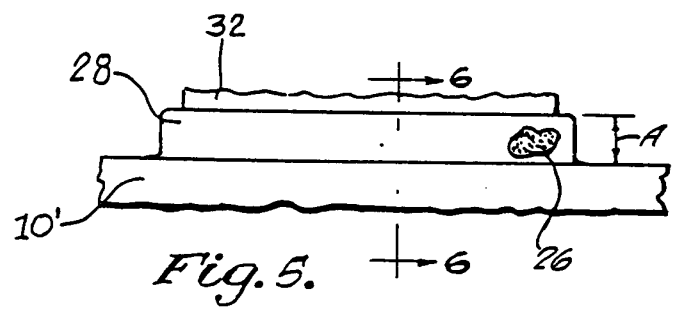
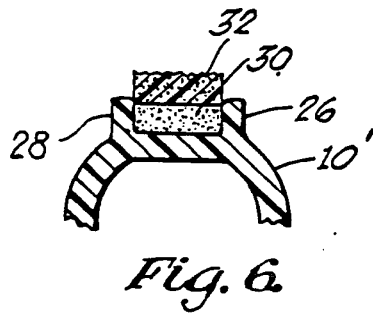
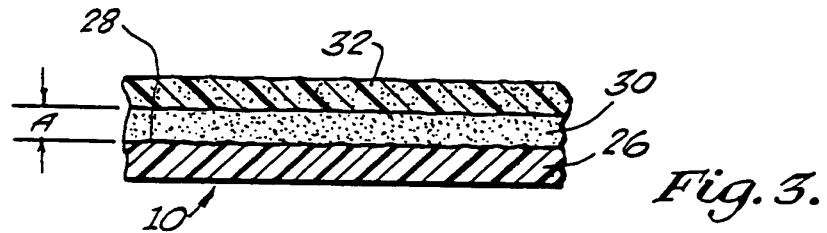


Fig. 1.



INTERNATIONAL SEARCH REPORT

International Application No PCT/US 84/02100

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ³ According to International Patent Classification (IPC) or to both National Classification and IPC Int. Cl. ³ A47L 13/19 U.S. CL. 15/227						
II. FIELDS SEARCHED <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Minimum Documentation Searched ⁴</div> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%; border-bottom: 1px solid black;">Classification System</th> <th style="border-bottom: 1px solid black;">Classification Symbols</th> </tr> <tr> <td style="vertical-align: top; padding: 5px;">US</td> <td style="padding: 5px;"> 15/104.94,227 51/391 2/161R D2/373,376 </td> </tr> </table> <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Documentation Searched other than Minimum Documentation to the extent that such Documents are included in the Fields Searched ⁵</div>			Classification System	Classification Symbols	US	15/104.94,227 51/391 2/161R D2/373,376
Classification System	Classification Symbols					
US	15/104.94,227 51/391 2/161R D2/373,376					
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴						
Category ⁶	Citation of Document, ¹⁵ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸				
X	US, A1,559,114 Published 27 Oct. 1925 (Maranville)	1-3				
Y	US, A4,038,787 Published 02 Aug. 1977 (Bianchi)	4,5,6,8,14, 15				
A	US, A4,051,572 Published 04 Oct. 1977 (Greenwood)	1-18				
A	US, A4,065,826 Published 03 Jan. 1978 (Hough)	1-18				
A	FR, A2,273,277 Published 13 Feb. 1976 (Scott)	1-18				
A	DE, C, 192,125 Published 04 Sept. 1906 (Handel)	1-18				
A	IT, A, 460,385 Published 20 Nov. 1950 (Catalano et al)	1-18				
Y	NL, C, 6,704,835 Published 05 Oct. 1967 (Sainturat)	6,8,14,15				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>¹⁵ * Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"A" document member of the same patent family</p> </div> </div>						
IV. CERTIFICATION						
Date of the Actual Completion of the International Search ² <div style="text-align: center; font-size: 1.2em;">25 January 1985</div>		Date of Mailing of this International Search Report ² <div style="text-align: center; font-size: 1.2em;">25 FEB 1985</div>				
International Searching Authority ¹ <div style="text-align: center; font-size: 1.2em;">ISA/US</div>		Signature of Authorized Officer ¹⁹ <div style="text-align: center;"> Edwards L. Roberts </div>				